

## **Crisis and Adaption**

### **– Expert Perspectives on the German Aquaculture**

The stakeholder meeting “Shape Aquaculture!” took place on April 14<sup>th</sup>, 2016 at the Thünen Institutes of Fisheries Ecology and Sea Fisheries in Hamburg. The EU Horizon 2020 Project SUCCESS<sup>1</sup> organized in charge and funded the event. To synergise approaches of the European fisheries and aquaculture research, SUCCESS partners have been working closely together with the EU Horizon 2020 sister projects AquaSpace<sup>2</sup> and CERES<sup>3</sup> in preparation of the stakeholder meeting. A quoted sample of 22 stakeholders, which work in the business sector, in national or federal states politics, in county administrations or environmental protection were selected. All 22 invitees have in common, that they have an expert knowledge regarding aquaculture. Further, all experts participated have in common that they deal with marine and/or freshwater aquaculture in their day-to-day work. The experts were chosen as representatives of an institution and opinion leader. For discussion, the experts were distributed across three smaller focus groups. Each focus group consisted of 7-8 experts. Each field of expertise mentioned above was represented in each focus group. The discussion started with a stimulus set by the moderator:

*“Aquaculture can be seen as international success story. Indeed, within the EU strategy „Blue Growth“ high expectations towards aquaculture are formulated. In Germany, the sector is comparable small and diverse. The development of the German sector has been stagnating for many years. Today, 90 % of German aquatic products are imported. Some people say, there is no need for a domestic aquaculture in Germany. What do you think?”*

After setting the stimulus, the experts started the discussion almost self-regulated. The moderator did not control the focus group in there discussion. This open-inductive procedure is a core principle of qualitative social research, which allows to gather the expert's interpretation of a situation. After ca. 60 minutes, the moderator asked two further questions, one addressing factors hampering the growth of aquaculture and one pointing to assumed climate change impacts towards aquaculture. Those questions have been chosen to meet all objectives of the above-mentioned research projects, even if the expert would not touch these topics by themselves. Indeed, all three focus groups discussed factors which hamper the aquaculture growth in Germany without extra setting up the question, but only one group discussed the topic of climate change without the introduction of this topic by the moderator. The focus groups have been recorded under the agreement that the results will be published anonymized.

---

<sup>1</sup> Strategic Use of Competitiveness towards Consolidating the Economic Sustainability of the European Seafood Sector (Grant No 635188); <http://www.success-h2020.eu/>

<sup>2</sup> Ecosystem Approach to making Space for Aquaculture (Grant No 633476); <http://www.aquaspace-h2020.eu/>

<sup>3</sup> Climate change and European aquatic RESources (Grant No 678193); <http://ceresproject.eu/>

In the following table the contents addressed by the focus groups are listed in alphabetical order. The summarized contents can be contradictory. The contents of the discussions are summarized and categorized as followed: authorization and obligations, company organization, consumer behavior, differentiation, federalism, location factors, image, predators and climate change. Further, they are divided by dimensions of crisis and adaption. From a sociological point of view, a crisis is defined as a situation perceived as problematic, which cannot be solved via established actions or strategies.<sup>4</sup> Adaption is a strategy to overcome a problematic situation. The list is tentative. There are necessarily not complement pairs of crisis and adaption. Further text analysis of the focus groups transcripts will be necessary.

Category	Crisis	Adaption
<p>Authorization and Obligations</p>	<p>The plurality and complexity of authorization procedures hamper the development of aquaculture.</p> <p>In particular, the development of modern trout farms (using partly RAS<sup>5</sup> technology) is hampered by nature protection regulations.</p> <p>Conservation focuses on the risks of aquaculture.</p> <p>The authorization of aquacultures takes place at county level. There, the officials are often non-experienced and uncertain regarding aquaculture practices.</p> <p>County authorities interpret regulations differently.</p> <p>Agricultural farms have privileges (e. g. building law); aquaculture does not.</p> <p>Drugs, which are approved for the terrestrial agriculture, are often not approved for aquaculture, too; although they are needed urgently.</p> <p>Hygiene regulations of retailers are too strict and complex as smallholders could manage as suppliers.</p>	<p>Central coordination of aquaculture authorizations.</p> <p>Upscaling of enterprises/farms to use economies of scale advantages. Here are still potentials for German trout producers. Large farms manage better the bureaucratic and legal obligations.</p> <p>Training of authorities employees at county level.</p>

<sup>4</sup>Rammstedt O. (2011): Krise In: Fuchs-Heinritz et al. (Hrsg.): Lexikon zur Soziologie. 5. Aufl. Wiesbaden: VS, p. 382.

<sup>5</sup>Recirculating Aquaculture System; there is a range of different RAS definitions in the literature. We have a wide understanding of RAS and according to Pillay and Kutty RAS is defined as any applied aquaculture construction which treats the production water and re-use it for fish farming ((2005) Aquaculture: principles and practices. Blackwell, Oxford).

Climate Change	<p>Regions with low precipitation like carp areas in Bavaria will struggle with shortage of rainfalls.</p> <p>Water shortage will lead to stricter water license approvals and obligations.</p> <p>Increased temperatures will be a challenge for cold water species.</p> <p>Aquacultures will struggle with increased diseases and appearance of parasites caused by warmer summers.</p>	<p>Warm water fish like carp will have a better productivity.</p> <p>If the 2°C aim will be reached, the trout farms in Baden-Württemberg would manage the adaption towards changed environmental frameworks.</p> <p>Regarding salmonids, invest in partly RAS technology.</p> <p>RAS are well prepared for climate change.</p>
Company Organisation	<p>Traditional fish farming is not profitable as full-time business anymore.</p> <p>Traditional fish farming – in particular trout farming – is profitable as supplier of regional niche markets.</p> <p>Industrial fish production needs a lot of investments, more than family farms, which predominate the German sector, could effort.</p> <p>Marketing is a barrier of entrepreneurship: Either the fish farmer needs a large production to supply the wholesale or a developed direct marketing to sell small amounts of fish regionally. Both distribution strategies challenge newcomers.</p> <p>Imports dominate the German retail. Only a very small group of German producers are internationally competitive.</p>	<p>Diversification of small-scale farms towards new (service) fields close to fish farming (e.g. processing, gastronomy, touristic services)</p> <p>Upscaling of enterprises/farms to use economies of scale advantages and enhance profitability.</p> <p>Modernization of farms.</p>
Consumer Behaviour	<p>The expectations towards a sustainable aquaculture are too high and unrealistic.</p> <p>The plurality and variety of labels confuse the consumers. Partly wrong labelling destroys consumers' trust in domestic product quality.</p> <p>There are contradictions between consumers' expectations towards aquaculture products and consumers' behavior: expectation of eco-friendly, sustainable fish</p>	<p>Highlighting the differences between species and production systems.</p> <p>Standardized and continuous communication towards consumer.</p> <p>Emphasize the product environment (e.g.</p>

	<p>farming versus decreasing demand for non-predatory fish which is cultured extensively (e.g. carp) versus low willingness to pay.</p> <p>You cannot change the consumers' behavior via educational advertising.</p> <p>Although conservationists have strongly promoted the consumption of carp as most eco-friendly fish consumption, the demand of carp have not increased yet.</p>	<p>tradition, regionalism).</p> <p>Enhance the traceability of products.</p> <p>Demand-orientated product development.</p>
Differentiation	<p>Aquaculture is a diverse sector with a variety of different species and different production systems. To generalize statements addressing one species/production system towards the whole sector is not valid.</p>	<p>Analyzing problems and solutions separate per species and production systems.</p>
Federalism	<p>The disunity between the federal states and the national state as well as in-between the federal states hampers the development of the German aquaculture sector.</p> <p>The missing national harmonization of regulation frameworks discourages investors.</p> <p>The European Maritime and Fisheries Fund (EMFF) is a well-aimed financial instrument of the Common Fisheries Policy. But, the EMFF application on federal state and therein county levels is divided into too small sections and responsibilities.</p>	<p>Standardization and simplification of regulation frameworks and authorization procedures.</p>
Location Factors	<p>Trout farms have to deal with old inherited water licenses, because they do not get new ones.</p> <p>There is a shortage of qualified staff.</p> <p>There is a shortage of space for aquaculture.</p> <p>Knowhow and new technologies are available, but there application is not</p>	<p>Intensification of water usage.</p> <p>Defining space for aquaculture in space planning.</p> <p>Improving national scientific networking and networking between business and science.</p>

	<p>diffused.</p> <p>High standards increase domestic production costs compared to international competitors.</p>	<p>Duties for imported products with lower environmental, consumer or hygienic standards.</p>
Image	<p>Aquaculture has a negative image in society. Unreflected media reports tighten up the situation.</p> <p>The knowledge level of people regarding aquaculture topics is very low. People do not differ between single species and production systems.</p>	<p>Consequently cultivation of image to reach prerogative of interpretation</p> <p>Enhance cooperation between producers associations.</p>
Predators	<p>In particular open systems like carp farms struggle with losses caused by predators like cormorant, European otter or damages through beaver activities; animals, which are strongly protected through nature protection laws.</p>	<p>Compensation payments.</p> <p>Subsidize defense actions.</p>

Tobias Lasner  
[tobias.lasner@thuenen.de](mailto:tobias.lasner@thuenen.de)  
 Thünen Institute, Hamburg



This project has received funding from the European Union's Horizon 2020 research and innovation programme.